

## CLAIMS

What is claimed is:

1. A fluid purification system comprising:  
a fluid handling component;  
a substrate;  
a photocatalyst on at least one surface of the substrate; and  
an ultraviolet light source directing ultraviolet light onto at least one surface of the fluid handling component and on the photocatalyst on the at least one surface of the substrate.
2. The fluid purification system of claim 1 wherein the at least one surface of the fluid handling component and the at least one surface of the substrate are in a fluid flow channel of the fluid purification system.
3. The fluid purification system of claim 2 wherein the ultraviolet light source is downstream of the fluid handling component.
4. The fluid purification system of claim 3 wherein the substrate is downstream of the ultraviolet light source.
5. The fluid purification system of claim 4 wherein the fluid handling component is an evaporator coil.

6. The fluid purification system of claim 1 wherein the fluid handling component is an evaporator coil.
7. The fluid purification system of claim 1 wherein the fluid handling component is a drain pan for an evaporator coil.
8. The fluid purification system of claim 1 wherein the ultraviolet light source is one of a plurality of ultraviolet light sources.
9. The fluid purification system of claim 1 installed in an HVAC system.

10. An air handling system comprising:
  - a heat transfer element in an air flow channel;
  - a photocatalyst on at least one surface in the air flow channel; and
  - an ultraviolet light source directing ultraviolet light onto the heat transfer element and on the photocatalyst on the at least one surface.
11. The air handling system of claim 10 further including a substrate onto which the photocatalyst is supported.
12. The air handling system of claim 10 wherein the heat transfer element is an evaporator coil.
13. The air handling system of claim 10 wherein the ultraviolet light is positioned at least substantially between the heat transfer element and the photocatalyst.
14. The air handling system of claim 10 further including a drain pan below the heat transfer element, the ultraviolet light source directing ultraviolet light onto at least a portion of an interior of the drain pan.
15. The air handling system of claim 10 wherein the photocatalyst is supported on a honeycomb substrate.